

AMENDMENTS TO THE CLAIMS

1-16 (Canceled)

17. (Previously Presented) The system of Claim 31, further comprising a heater configured to heat said exposed surface prior to the exposed surface being exposed to the laser light.

18. (Previously Presented) The system of Claim 17, further comprising drive electronics and a heat exchanger, wherein at least one of said array of lasers and said drive electronics generates heat and said heat exchanger transfers the heat generated to the exposed surface.

19. (Previously Presented) The system of Claim 17, wherein the heater comprises a light emitter.

20. (Previously Presented) The system of Claim 31, comprising another light emitter positioned adjacent to said laser array and adapted to supply sufficient light so as to bring said substrate close to a marking threshold, wherein while said array of lasers emits light, and the exposed surface passes the marking threshold due to the combined effect of said laser array and said other light emitter.

21. (Previously Presented) The system of Claim 20, wherein said light emitter emits light to said exposed surface at a point substantially coincident with the point of light from the laser light emitting source.

22. (Previously Presented) The system of Claim 31, comprising means for varying the energy supplied to each point of the exposed surface by varying over time at least one of the pulse and amplitude of the transmitted light, whereby variation in mark pigmentation may be achieved.

23. (Previously Presented) The system of Claim 31, wherein at least one optical element is located between said lasers and said substrate.

24. (Previously Presented) The system of Claim 23, wherein said at least one optical element incorporates at least one of a single bulk lens, an array of micro lenses, a wave guide, a graded-index lens, a diffractive optical element, and a reflector.

25. (Previously Presented) The system of Claim 31, further comprising a plurality of radiation outputs and means for switching the path of radiation to selected outputs.

26. (Previously Presented) The system of Claim 31, further comprising means for directing the radiation in a plurality of directions.

27. (Previously Presented) The system of Claim 25, further comprising at least one of a mechanically displaceable optical element, an electronically switchable diffractive element, and a branched wave guide.

28. (Previously Presented) The system of Claim 26, further comprising at least one of a mechanically displaceable optical element, an electronically switchable diffractive element, and a branched wave guide.

29. (Previously Presented) The system of Claim 31, wherein each of the array lasers is configured to be pulsed.

30. (Canceled)

31. (Currently Amended) A laser marking system configured to mark a substrate, the system comprising:

a laser light emitting source;

a substrate formed of at least one of paper, a sheet form, synthetic paper and resin film;

means for displacing said substrate relative to said laser light emitting source, wherein the displacing means is configured to expose a surface of the substrate to light from the laser light emitting source, and the exposed surface is sufficiently sensitive to light from the laser light emitting source that, when exposed, energy is absorbed at at least one point of said substrate; whereby a reaction occurs which marks-changes the color of the exposed surface and said substrate is the printed product of said laser marking system; and

means for transmitting light from said laser light emitting source to the exposed surface,

wherein said laser light emitting source comprises an array of lasers arranged for simultaneous multi-point marking, and said array of lasers comprise semi-conductor laser diodes configured to emit light in at least one of the infra red and near infra red spectrums.

32. (Currently Amended) A laser marking system configured to mark a substrate, the system comprising:

a laser light emitting source;

a substrate formed of at least one of paper, a sheet form, synthetic paper and resin film;

a moving component configured to displace the substrate relative to said laser light emitting source, wherein the moving component is configured to expose a surface of the substrate to light from the laser light emitting source, and the exposed surface is sufficiently sensitive to light from the laser light emitting source that, when exposed, energy is absorbed at least one point of said substrate; whereby a reaction occurs which marks-changes the color of the exposed surface and said substrate is the printed product of said laser marking system; and

an optical element configured to transmit light from said laser light emitting source to the exposed surface,

wherein said laser light emitting source comprises an array of lasers arranged for simultaneous multi-point marking, and said array of lasers comprise semi-conductor laser diodes configured to emit light in at least one of the infra red and near infra red spectrums.

33. (New) The system of claim 31, wherein the substrate is colored primarily by photo-chemical reactions brought about by the shining of the laser beam on a given area of said substrate.

34. (New) The system of claim 17, wherein said heater is a pre-heating bar covering the width of the substrate.

35. (New) The system of claim 31, further comprising optical biasing means, comprising a secondary uniform light source which upon actuation shines onto the substrate, achieving an optical density just below the marking threshold.

36. (New) The system of claim 35, wherein the optical biasing means further acts to heat the substrate prior to marking.